

8. GLOSSARY

abandon: To cease producing oil or gas from a well when it becomes unprofitable. Usually, some of the casing is removed and salvaged, and one or more cement plugs placed in the borehole to prevent migration of fluids between formations.

acre-foot or acre-feet (ac-ft): The volume of water that covers an area of one acre to a depth of one foot (43,560 cubic feet or 325,851 gallons).

ad valorem: Levied according to assessed value.

affected environment: The resource values potentially affected by the Proposed Action and alternatives analyzed in a NEPA document.

air quality: The properties and degree of purity of air to which people and natural and heritage resources are exposed (National Park Service website <<http://www2.nature.nps.gov/air/AQBasics/glossary.htm>>).

algal: Of, pertaining to, or composed of algae.

alkaline: Having the quality of a base (pH of 7.0 or greater).

allotment: An area of land where one or more permittees graze their livestock. Generally consists of public land but may include parcels of private or state lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture.

alluvium: Clay, silt, sand, and gravel or other rock material transported by flowing water and deposited as sorted or semi-sorted sediments.

ambient: The environment as it exists at the point of measurement and against which changes or impacts are measured.

ambient air: The portion of the atmosphere, external to buildings, to which the public has general access (40 CFR 50).

ambient concentration: The mass of a pollutant in a given volume of air, typically measured as micrograms of pollutant per cubic meter of air.

ambient standards: The absolute maximum level of a pollutant allowed to protect either public health (primary) or welfare (secondary).

American Petroleum Institute (API): API is the governing authority on oil industry standards and practices. "API Gravity" is a reference system for the density of crude oils and constituent hydrocarbons.

ancillary facilities: Facilities often required in an oil and gas field other than the wells and pipelines, such as compressor stations.

animal unit month (AUM): A standardized unit of measurement of the amount of forage necessary for the sustenance of one animal unit for 1 month; also, a unit of measurement that represents the privilege of grazing one animal unit for 1 month.

anticline: A geological formation described usually as a dome or inverted saucer. If covered by an impermeable layer of rock, the anticline is a potential oil or gas reservoir.

Application for Permit to Drill (APD): The Department of the Interior's application permit form to authorize oil and gas drilling activities on federal land or mineral estate.

aquifer: A water-bearing bed or layer of permeable rock, sand, or gravel capable of yielding water.

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aquitard: A bed of low permeability adjacent to an aquifer that may serve as a storage unit for groundwater, although it does not readily yield water.

archaeological: The scientific studies of past peoples and cultures by analysis of physical remains (artifacts).

Aridosols: Soils formed in arid climates; they are often dry and have little organic accumulation in the upper layers.

arkose: a sedimentary rock, specifically a type of sandstone that contains at least 25% feldspar.

area of critical environmental concern (ACEC): An area on public lands designated for special management to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes or to protect life and safety from natural hazards.

background concentration: The existing levels of air pollutant concentration in a given region. In general, it includes natural and existing emission sources but not future emission sources.

badland: Steep or very steep, commonly non-stony barren land dissected by many intermittent drainage channels. Badland is most common in semi-arid and arid regions where streams are entrenched in soft geologic material. Runoff potential is very high, and geologic erosion is active in such areas.

berm: A raised area with vertical or sloping sides.

biodiversity: The variety of plant and animal life on a given area.

borehole: The circular hole made by drilling, extending from the surface to the gas resource to be recovered.

brush hog: A heavily built rotary-type mower that is typically attached to the back of a farm tractor, with dull blades that are propelled outward by centrifugal force, installed on hinges so that they bounce backward and inward if they hit a rock or stump.

calcareous: Containing calcium carbonate.

capability: In the context of the Standards for Healthy Rangelands for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming, the highest ecological status a riparian-wetland area can attain given political, social, or economical constraints (i.e., human-caused limiting factors).

casing: Steel pipe placed in an oil or gas well to prevent the hole from collapsing.

CD-C consultation group: An interagency group that BLM would consult on implementation of the CD-C Preferred Alternative.

cement: Cement is used to “set” casing in the well bore and to seal off unproductive formations and apertures.

collector roads: BLM roads that provide primary access to large blocks of land and connect with, or are extensions of, a public road system.

colluvium: A general term applied to loose and incoherent deposits, usually at the foot of a slope or cliff and brought there chiefly by gravity.

completion: The activities and methods to prepare a well for production. Includes installation of equipment for production from an oil or gas well.

condensate (gas condensate): Hydrocarbons (oil) contained in the natural gasstream, often removed by condensation.

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conditions of approval (COAs): A set of restrictions, or conditions, included in the approval of a federal permit, including NEPA documents.

conglomerate: Rounded water-worn fragments of rock or pebbles cemented together by another mineral substance.

conglomeratic: Sandstones derived from rounded water-worn fragments of rocks or pebbles.

contrast: The effect of a notable difference in the form, line, color, or texture of the landscape features within the area being viewed.

Controlled Surface Use (CSU): A category of stipulation that allows some use and occupancy of public land while protecting identified resources or values. A CSU stipulation identifies the location protected, activities prohibited or restricted, and the resources protected. The extent of protection may range from a limited area for only one activity to all uses.

corridor: A narrow strip of land.

corvid: A member of the crow family (*corvidae*), which includes ravens, rooks, jackdaws, jays, magpies, treepies, choughs, and nutcrackers.

Council on Environmental Quality (CEQ): An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Cretaceous era: The latest system of rocks or period of the Mesozoic era, between 136 and 65 million years ago.

criteria pollutants: Air pollutants for which the EPA has established state and national ambient air quality standards. These include particulate matter (PM), nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), and volatile organic compounds (VOCs).

critical elements of the human environment: A list of resource concerns that must be addressed in every NEPA document.

crucial range: Any particular seasonal range or habitat component that has been documented as the determining factor in a population's ability to maintain itself at a certain level over the long-term.

cubic feet per second (cfs): The rate of discharge representing a volume of 1 cubic foot of water passing a given point during 1 second.

cubic foot: The volume of gas contained in one cubic foot of space at a standard pressure base of 14.7 pounds per square inch and a standard temperature base of 60 °F.

cuesta: A geological term describing an asymmetric ridge formed by gently tilted hard rock layers. Every cuesta has a steep slope, where the rock layers are exposed on their edges, called an escarpment or, if more severe, a cliff. Usually an erosion-resistant rock layer, a cuesta also has a long, more gentle slope on the other side of the ridge called a "dip slope."

cultural resources: The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) and the conceptual content or context (as a setting for legendary, historic, or prehistoric events, such as a sacred area of native peoples, etc.) of an area of prehistoric or historic occupation.

culvert: A drain or conduit often under a road.

cumulative impact: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taken place over a period of time (40 CFR 1508.7).

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cuttings: The material removed from the borehole by the drill bit and lifted to the surface.

decibel: A unit of measurement of noise intensity. The measurements are based on the energy of the sound waves and units are logarithmic. Changes of 5 decibels or more are normally discernible to the human ear.

deciduous: Trees or shrubs that lose their leaves each year during a cold or dry season.

deciview: The unit of measurement of haze developed to uniformly describe levels of monitored and modeled visibility impairment. A *delta deciview* is a change in haze index calculated between baseline haze levels and predicted future levels.

delta: An alluvial deposit, usually triangular, at the mouth of a river.

deltaic: Related to or like a delta.

diffusion: A process by which substances are transferred from regions of higher concentrations to regions of lower concentrations (National Park Service website <<http://www2.nature.nps.gov/air/AQBasics/glossary.htm>>).

directional drilling: The intentional deviation of a wellbore from vertical to reach subsurface areas off to one side from the surface drilling site.

discharge: The volume of water flowing past a point per unit time, commonly expressed as cubic feet per second (cfs), gallons per minute (gpm), or million gallons per day (mgd).

dispersion: The spreading out of pollutants. Generally used to show how much an air pollutant will spread from a particular point.

displacement: As applied to wildlife, forced shifts in the patterns of wildlife use, either in location or timing of use.

disposal well: A well into which produced water from other wells is injected into an underground formation for disposal.

dissolved solids: The total amount of dissolved material, organic and inorganic, contained in water or wastes.

diversity: The distribution and abundance of different plant and animal communities and species.

drainage: Natural channel through which water flows some time of the year. Natural and artificial means for effecting discharge of water as by a system of surface and subsurface passages.

drill rig: The mast, draw works, and attendant surface equipment of a drilling unit.

drilling fluid: Fluid used to lubricate and cool the drill bit, to assist in lifting cuttings from the borehole, and to control pressures in the borehole.

drilling mud: The circulating fluid used to bring cuttings out of the well bore, to cool the drill bit, and to provide hole stability and pressure control. Drilling mud includes a number of additives to maintain the mud at desired viscosities and weights. Some additives that may be used are caustic, toxic, or acidic.

drought: Prolonged dry weather (precipitation less than 75 percent of average annual amount).

ecosystem: An interacting system of organisms considered together with their environment (e.g., forest, marsh, and stream ecosystems).

edaphic: Relating to soil, especially as it affects living organisms. Edaphic characteristics include such factors as water content, acidity, aeration, and the availability of nutrients.

emergent vegetation: Erect, rooted, herbaceous plants that project out of or emerge from the water.

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emission factor: An empirically derived mathematical relationship between pollutant emission rate and some characteristic of the source such as volume, area, mass, or process output.

emission: Air pollution discharge into the atmosphere, usually specified by mass per unit time.

Endangered species (animal): Any animal species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of the Interior determines to be pests and whose protection under the Endangered Species Act of 1973 would present an overwhelming and overriding risk to man.

Endangered species (plant): Species of plants in danger of extinction throughout all or a significant portion of their ranges. Existence may be endangered because of the destruction, drastic change, or severe curtailment of habitat or because of over exploitation, disease, predation, or even unknown reasons. Plant taxa from limited areas (e.g., the type localities only) or from restricted fragile habitats usually are considered endangered.

environment: The aggregate of physical, biological, economic, and social factors affecting organisms in an area.

environmental impact statement (EIS): An analysis of alternative actions and their predictable environmental impacts, including physical, biological, economic, and social consequences and their interactions; short-and long-term impacts; and direct, indirect, and cumulative impacts.

Eocene: 1) The next to the oldest of the five major epochs of the Tertiary period in the Cenozoic era. 2) The series of strata deposited during that epoch.

eolian: The erosive action of the wind and deposits that are transported by the wind.

ephemeral drainage: A drainage area or a stream that has no base flow. Water flows for a short time each year but only in direct response to rainfall or snowmelt events.

epicenter: The portion of the earth's surface directly above the focus of an earthquake.

erosion: The removal, detachment, and entrainment of earth materials by weathering, dissolution, abrasion, and corrosion, later to be transported by moving water, wind, gravity, or glaciers.

fault: A fracture in bedrock along which there has been vertical and/or horizontal movement caused by differential forces in the earth's crust.

federal lands: All lands and interests in lands owned by the U.S., which are subject to the mineral leasing laws, including mineral resources or mineral estates reserved to the U.S. in the conveyance of a surface or non-mineral estate.

feral: having reverted to the wild state; not domesticated; as in feral (or wild) horses.

field: 1) A set of rocks containing hydrocarbons. 2) An oil and gas reservoir.

flare: Process that burns and evacuates unused gases.

floodplain: That portion of a river valley, adjacent to the channel, which is built of recently deposited sediments and is covered with water when the river overflows its banks at flood stages.

fluvial: Of or pertaining to rivers.

forage: Vegetation of all forms available for animal consumption.

forb: A broad-leaved flowering herb other than grass.

formation: A rock/mineral deposit or structure covering an area with the same physical properties.

fracing (fracturing): A method of stimulating well production by increasing the permeability of the producing formation. Under extremely high hydraulic pressure, the fracturing fluid (water, oil, dilute

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hydrochloric acid, or other fluid) is pumped into the formation that parts or fractures it. Proppants or propping agents such as sand or glass beads are pumped into the formation as part of the fracturing job. The proppants become wedged in the open fractures, leaving channels for oil or gas to flow into the well after the hydraulic fracture pressure is released. This process is often called a “frac job.” When high concentrations of acid are used, it may be called an “acid frac job.”

fugitive dust: Airborne particles emitted from any source other than through a controllable stack or vent.

gathering pipelines: Pipelines within a field that transport gas or oil from the well to a central production facility or to the point of sale.

Global Positioning System (GPS): Computer software that records and stores coordinates for positions on earth via satellite.

gravitational acceleration constant (g): The indication of the intensity of a gravitational field. Expressed in meters per second squared (m/s^2), at the surface of the earth, 1 g is about 9.8 m/sec^2 . As an example 5%g means that motion of $5\% \times 9.8 \text{ m/sec}^2$ can be expected.

groundwater: Water contained in the pore spaces of consolidated and unconsolidated material.

habitat: A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

habitat function: The arrangement of habitat features and capability of those features to sustain species, population, and diversity of wildlife over time.

Holocene: That period of time (epoch) since the last ice age; also the series of strata deposited during that epoch.

human environment: The factors that include but are not limited to biological, physical, social, economic, cultural, and aesthetic factors that interrelate to form the environment.

hydraulic conductivity: The rate of water flow in gallons per day through a cross-section of 1 square foot under a unit hydraulic gradient at the prevailing temperature of 60°F.

hydrocarbon: A compound formed from carbon and hydrogen, for example oil and gas.

hydrology: A science that deals with the properties, distribution, and circulation of surface and subsurface water.

hydrostatic testing: Testing of the integrity of a newly placed but uncovered pipeline for leaks. The pipeline is filled with water and pressurized to operating pressures, and the pipeline is visually inspected.

impacts: These include a) direct impacts, which are caused by the action and occur at the same time and place and b) indirect impacts, which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts may include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate and related impacts on air and water and other natural systems, including ecosystems. Impacts include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may also include those resulting from actions which may have both beneficial and detrimental impacts, even if on balance the agency believes that the impact will be beneficial (40 CFR 1508.8).

impermeable: Not permitting the passage of a fluid.

impoundment: The accumulation of any form of water in a reservoir or other storage area.

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increment: Incremental standards (prevention of significant deterioration [PSD]) are the maximum amounts of pollutants allowed above the baseline in regions of clean air.

infiltration: The movement of water or some other liquid into the soil or rock through pores or other openings.

infrastructure: The basic framework or underlying foundation of a community including road networks, electric and gas distribution, water and sanitation services, and facilities.

injection well: A well that is used to inject produced water from drilling operations in order to maintain pressure or to bring a field back under pressure.

intensive management. Management that includes the use of proper distance restrictions, mitigation stipulations, seasonal or timing restrictions, rehabilitation standards, reclamation measures, use of Best Management Practices, and the application of the Wyoming Mitigation Guidelines for Surface Disturbing and Disruptive Activities to adequately protect the resources for which the intensive management is applied. Intensive management actions would be applied with the goal of maintaining or enhancing sensitive resources (i.e., plant communities, wildlife habitat, soils, water, archeological or paleontological resources, etc.). Management may include attaching conditions of approval to specific projects or additional planning recognizing the unique resources for which the area is managed; typically these would be more restrictive than standard management and would be designed for specific projects and locations.

interdisciplinary team (IDT): A group of federal and cooperating agencies selected to work within the NEPA process in scoping, analysis, and document preparation. The purpose of the team is to integrate its collective knowledge of the physical, biological, economic, and social sciences and the environmental design arts into the environmental analysis process. Interaction among team members often provides insight that otherwise would not be apparent.

interim reclamation: Reclamation initiated on well pads, roads, and pipelines after drilling activity is completed and wells are in production. Interim reclamation is considered successful when reclamation performance objectives are met.

intermittent stream: A stream or reach of a stream that is below the local water table for at least some part of the year and obtains its flow from both surface runoff and groundwater discharge.

intertongue: Irregular/overlapping boundaries among rock formations.

intervisible turnout: a turnout on a local or BLM road where approaching drivers have a clear view of the section of road between the two turnouts and can pull off to the side to let the approaching driver pass

invasive species: a species that is not native (or is alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112).

irretrievable: A term that applies to the loss of production, harvest, or use of natural resources. For example, some or all of the timber production from an area is lost irretrievably while an area is serving as a winter sports site. The production lost is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume timber production.

irreversible: A term that describes the loss of future options. Applies primarily to the effects of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods of time.

isopach: A contour that connects points of equal thickness. Commonly, the isopachs, or contours that make up an isopach map, display the stratigraphic thickness of a rock unit as opposed to the true vertical thickness. Isopachs are true stratigraphic thicknesses; i.e., perpendicular to bedding surfaces.

lacustrine: Pertaining to, produced by, or formed in a lake or lakes.

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land use: The types of activities allowed (e.g., mining, agriculture, timber production, residential, industrial).

landslide: A perceptible downhill sliding or falling of a mass of soil and rock lubricated by moisture or snow.

lease: 1) A legal document that conveys to an operator the right to drill for oil and gas. 2) The tract of land on which a lease has been obtained, where producing wells and production equipment are located.

lek: A traditional courtship display attended by male greater sage-grouse in or adjacent to sagebrush-dominated habitat. Leks are categorized as:

Active: Any lek that has been attended by male greater sage-grouse during the strutting season.

Inactive: Leks where it is known that there was no strutting activity through the course of a strutting season.

Unknown: Leks that have not been documented either active or inactive during the course of a strutting season.

Occupied: A lek that has been active during at least one strutting season within the last 10 years.

Unoccupied (formerly termed “historical lek”): There are two types of unoccupied leks: (1) Destroyed -a formerly active lek site and surrounding sagebrush habitat that has been destroyed and is no longer capable of supporting greater sage-grouse breeding activity. (2) Abandoned -a lek in otherwise suitable habitat that has not been active during a consecutive 10-year period.

Undetermined: Any lek that has not been documented as being active in the last 10 years but that does not have sufficient documentation to be designated unoccupied.

Life of project: Begins with the first disturbance authorized under the ROD for this project and ends when all wells are plugged and abandoned and all surface disturbance (each disturbed site) meets the reclamation performance objectives.

lithic scatter: A surface scatter of cultural artifacts and debris that consists entirely of lithic (i.e., stone) tools and chipped stone debris. This is a common prehistoric site type that is contrasted to a cultural material scatter (which contains other or additional artifact types such as pottery or bone artifacts), or to a camp (which contains habitation features, such as hearths, storage features, or occupation features), or to other site types that contain different artifacts or features.

lithology: The description of the physical character of a rock as determined by eye or with a low-powered magnifier, based on color, structures, mineralogic components, and grain size.

loam: A mixture of sand, silt, and clay containing between 7 and 27 percent clay, 28 to 50 percent silt and less than 50 percent sand.

local roads: BLM roads that provide primary access to large blocks of land and connect with or are extensions of a public road system.

Loess: a geologic term that refers to deposits of silt (sediment with particles 2–64 microns in diameter) that have been laid down by wind action.

log: A systematic recording of data, as from the driller’s log, mud log, electrical well log, or radioactivity log. Many different logs may be run to obtain various characteristics of down-hole formations.

long-term impacts: For the purpose of this NEPA analysis, long-term impacts last for the life of the project or beyond.

migrate: To pass periodically from one region or climate to another.

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mineral rights: Reserved mineral rights are the retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for exercising these rights have been defined in the Secretary's Rules and Regulations to Govern Exercising of Mineral Rights Reserved in Conveyances to the United States attached to and made a part of deeds reserving mineral rights.

mitigate: To lessen the severity.

mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree of magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or compensating for the impact by replacing or providing substitute resources or environments.

mitigation measures: Actions taken to reduce or minimize potential impacts to the environment.

modeling: A mathematical or physical representation of an observable situation. In air pollution control, models afford the ability to predict pollutant distribution or dispersion from identified sources for specified weather conditions.

mollisols: Soil order that has a thick (generally 10-inch), very dark brown to black surface horizon that is rich in organic matter (grassland soils common in prairie regions).

monitor: To systematically and repeatedly watch, observe, or measure environmental conditions in order to track changes.

mud: Mud is drilling fluid that consists mainly of a mixture of water, or oil distillate, and "heavy" minerals such as bentonite or barites.

mud system: A system used to manage suspended mud in the well-drilling process.

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants in the air specified by the federal government. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare from any unknown or expected adverse effects of air pollutants).

National Environmental Policy Act of 1969 (NEPA): The federal law established in 1969, which went into effect on January 1, 1970, that 1) established a national policy for the environment, 2) requires federal agencies to become aware of the environmental ramifications of their Proposed Actions, 3) requires full disclosure to the public of proposed federal actions and a mechanism for public input into the federal decision-making process, and 4) requires federal agencies to prepare an environmental impact statement for every major action that would significantly affect the quality of the human environment.

National Register of Historic Places: A list of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture.

native species: Plants or animals that originated in the area in which they are found (i.e., they naturally occur in that area); with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

natural gas: Those hydrocarbons, other than oil and other than natural gasliquids separated from natural gas, that occur naturally in the gaseous phase in the reservoir and are produced and recovered at the wellhead in gaseous form.

nephelometric turbidity unit (NTU): A unit measuring the lack of clarity of water, used by water and sewage treatment plants; named for the nephelometer used to take the measurement.

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No Action Alternative: The management direction, activities, outputs, and effects that are likely to exist in the future if the current plan would continue unchanged.

No Surface Occupancy (NSO): A stipulation in a lease that disallows any surface disturbance in the lease area at any time. Natural Gas or oil from an NSO area, for instance, would have to be recovered by directional drilling.

Notice of Intent (NOI): A notice published in the Federal Register to announce the intent to prepare an EIS.

noxious weeds: Officially designated (State of Wyoming-designated, Sublette County-declared) undesirable or invading weedy species generally introduced into an area due to human activity.

oil and gas field: A natural accumulation of oil and gas in the subsurface. Oil and gas may be present in two or more reservoirs at different depths.

oil and gas lease: A federal oil and gas lease is a legal document that gives the lease holder the right to explore for and develop any oil and gas that may be present under the area designated in the lease while complying with any surface use conditions which may have been stipulated when the lease was issued.

ozone (O₃): A molecule containing three oxygen atoms produced by passage of an electrical spark through air or oxygen (O₂).

paleontology: The science that deals with the history and evolution of life on earth. **particulate matter:** A particle of soil or liquid matter (e.g., soot, dust, aerosols, fumes, and mist).

passerine: Passerines are the perching birds, and most are also songbirds.

perennial stream: A stream or reach of a stream that flows throughout the year.

perforation: Holes punched in the casing of a well at the pay zone to be produced to allow gas or oil to enter the well.

permeability: The extent that a substance is open to passage or penetration, especially by fluids.

permeable: The property or capacity of a porous rock, sediment, or soil to transmit a liquid.

permittee (grazing): A person who has livestock grazing privileges on an allotment or allotments within the resource area.

pH: Measure of acidity or alkalinity

phenology: The study of periodic plant and animal life-cycle events that occur periodically, such as blossoming or migration, and how these are influenced by seasonal and interannual variations in climate.

physiographic province: A region having a pattern of relief features or landforms that differs significantly from adjacent regions.

physiography: The genesis and evolution of landforms.

playa: The low, flat parts of a basin or other undrained area typically characterized by depressions with clay bottoms that pool water on the surface and accumulate salts (see also riparian areas).

PM₁₀: Airborne suspended particles with an aerodynamic diameter of 10 microns or less.

PM_{2.5}: Airborne suspended particles with an aerodynamic diameter of 2.5 microns or less.

potential: In the context of the Standards for Healthy Rangelands for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming, the highest ecological status a riparian-wetland area can attain given no political, social, or economical constraints.

preferred alternative: The alternative identified in the EIS as the action favored by the agency.

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prevention of significant deterioration (PSD): A classification established to preserve, protect, and enhance the air quality in National Wilderness Preservation System areas in existence prior to August 1977 and other areas of national significance, while ensuring economic growth can occur in a manner consistent with the preservation of existing clean air resources. Specific emission limitations and other measures, by class, are detailed in the Clean Air Act (42 U.S.C. 1875 et seq.).

produced water: Water brought to the surface through the borehole.

production: Phase of commercial operation of an oil field.

production casing: Steel pipe installed in the borehole to isolate formations in the borehole and to eliminate communication among hydrocarbon-bearing zones and/or water aquifers and other mineral resources.

proppants: Proppants or propping agents are substances such as sand or glass beads that are pumped into the formation as part of the fracturing job. The proppants become wedged in the open fractures, leaving channels for oil to flow into the well after the hydraulic fracture pressure is released. This process is often called a “frac job.” When high concentrations of acid are used, it may be called an “acid frac job” (see also fracing/fracturing).

PSD increments: The maximum allowable increase in pollutant concentrations permitted over baseline conditions as specified in the EPA Prevention of Significant Deterioration (PSD) regulations (40 CFR Part 52.21). The regulations apply only to areas currently attaining NAAQS/WAAQS. Most National Parks and Wilderness Areas are Class I areas, where almost no future pollution increase is permitted. Most other areas are Class II areas, where moderate increases in pollution levels are allowed.

public land: Lands or interests in lands owned by the United States and in this case administered by the Secretary of Interior through the Bureau of Land Management, without regard to how the United States acquired ownership.

quaternary: The latest period of time, from the present to 2 million years ago and represented by local accumulations of glacial and post-glacial deposits.

range: Land producing native forage for animal consumption and lands that are revegetated naturally or artificially to provide forage cover that is managed like native vegetation, that are amenable to certain range management principles or practices.

raptor: A group of carnivorous birds consisting of hawks, eagles, falcons, kites, vultures, and owls.

recharge: Replenishment of the water supply in an aquifer through the outcrop or along fracture lines.

reclamation: Rehabilitation of a disturbed area to make it acceptable for designated uses. This normally involves regrading, replacement of topsoil, revegetation, and other work necessary to restore it for use.

Record of Decision (ROD): A decision document for an EIS or Supplemental EIS that publicly and officially discloses the responsible official’s decision regarding the actions proposed in the EIS and their implementation.

reserve pit: An excavated pit that may be lined with plastic that holds drill cuttings and waste mud.

reserves/recoverable reserves: Areas of mineral-bearing rock from which the mineral can be extracted profitably with existing technology and under present economic conditions.

reservoir: The “pool” of oil or gas that is being tapped.

residuum: Unconsolidated, weathered, or partly weathered mineral material that accumulates by disintegration of bedrock in place.

resource roads: Spur roads that provide point access, as to a well site, and connect to local or collector roads.

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revegetation: The reestablishment and development of self-sustaining plant cover. On disturbed sites, human assistance will speed natural processes by seedbed preparation, reseeding, and mulching.

rig: A collective term to describe the equipment needed when drilling a well.

right-of-way: The legal right for use, occupancy, or access across land or water areas for a specified purpose or purposes.

riparian area: A transition between wetlands or water bodies and upland areas. Riparian areas exhibit vegetation or physical characteristics that reflect the influence of subsurface water in the root zone. Typical riparian areas include lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that lack vegetation and depend on free water in the soil.

riparian communities. Communities of vegetation associated with either open water or wetlands. Examples are cottonwood and willow communities; meadows; aspens near water sources; and other trees, grasses, forbs, and shrubs associated with water.

road metal: the crushed rock used for road beds and surfaces, foundations, and railway embankments, among other things

roosting: To rest or sleep in a roost. A bird will typically use the same roost for an extended period of time.

runoff: That part of precipitation that appears in surface streams. Precipitation that is not retained on the site where it falls and is not absorbed by the soil.

salinity: 1) A measure of the amount of mineral substances dissolved in water; 2) salty.

scatter (archeological): Archaeological evidence of prior disturbance that is distributed about an area rather than concentrated in a single location.

scope: Extent or range of view.

scoping: An early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to a Proposed Action. Scoping may involve public meetings, field interviews with representatives of agencies and interest groups, discussions with resource specialists and managers, and written comments in response to news releases, direct mailings, and articles about the Proposed Action and scoping meetings.

sediment: Soil or mineral transported by moving water, wind, gravity, or glaciers, and deposited in streams or other bodies of water or on land.

sediment load: The amount of sediment (sand, silt, and fine particles) carried by a stream or river.

seismic: Pertaining to an earthquake or earth vibration, including those that are artificially induced.

shale: A laminated sediment in which the constituent particles are predominantly of the clay grade.

short-term impacts: For the purpose of this analysis, short-term impacts are generally defined as those that would last for 5 years or less.

shrink-swell: Refers to clays or soils that alternately expand and contract in a semiarid climate where drying out is possible.

shut-in: The process of stopping production at an otherwise producing well.

significant impact: A meaningful standard to which an action may impact the environment. The impact may be beneficial, adverse, direct, indirect, or cumulative and may be short-term or long-term.

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silt: Any earthy material composed of fine particles, smaller than sand but larger than clay, suspended in or deposited by water.

slope wash: Soil and rock material that is being or has been moved down a slope predominantly by the action of gravity assisted by running water that is not concentrated into channels.

socioeconomics: Study of an impact region on the current and projected population and relative demographic characteristics (housing, economy, government, etc.).

soil productivity: The capacity of a soil to produce a specific crop such as fiber and forage, under defined levels of management. It is generally dependent on available soil moisture, nutrients, and length of growing season.

sole source aquifer: An aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer.

spacing: The number of acres per given well in the subsurface. For instance, 160-acre spacing means that one well would be drilled in each quarter section (160 acres) or up to four wells per section (640 acres).

species of concern: Species of concern include federally listed Threatened or Endangered species, species proposed for listing, BLM Sensitive Species, WGFD priority species, and species considered rare or important by the Wyoming Natural Diversity Database.

stipulation: A legal requirement, specifically a requirement that is part of the terms of a mineral lease. Some stipulations are standard on all federal leases. Other stipulations may be applied to the lease at the discretion of the surface management agency to protect valuable surface resources. Stipulations are supported by the NEPA process; without NEPA support, a stipulation cannot be added to the lease.

strata: An identifiable layer of bedrock or sediment.

stromatolite: a laminated usually mounded sedimentary fossil formed from layers of cyanobacteria, calcium carbonate, and trapped sediment. (Merriam-Webster)

structural basin: A large depression of structural origin.

substrate: Material consisting of silts, sands, gravels, boulders, and/or woody debris found on the bottom of a stream channel.

surface-disturbing activities: Any authorized action that disturbs vegetation and surface soil, increasing erosion potential above normal site conditions. This definition typically applies to mechanized or mechanical disturbance. However, intense or extensive use of hand or motorized hand tools may fall under this definition. Examples of surface-disturbing activities include construction of well pads and roads, pits and reservoirs, pipelines and power lines, mining, and vegetation treatments.

Tank flashing: Flashing losses occur when a liquid with entrained gases goes from a higher pressure to a lower pressure. This occurs when condensate is transferred into a tank. As the pressure on the liquid drops, some of the compounds dissolved in the liquid are released, or “flashed.” Increases in the temperature of the liquid can also cause flashing losses.

Taphonomy: The study of the origin and nature of accumulations of fossils, i.e., what happened to an organism between the time it died and the time it was buried in sediment that later became lithified rock.

taxon (plural: taxon): A population, or group of populations of organisms which are usually inferred to be phylogenetically related and which have characters in common which differentiate the unit (e.g. a geographic population, a genus, a family, an order) from other such units. A taxon encompasses all included taxa of lower rank and individual organisms.

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taxadjunct: a soil that has properties outside the range of any recognized series. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Tertiary: The older of the two geologic periods comprising the Cenozoic Era; also the system of strata deposited during that period.

Threatened species: Any species (plant or animal) that is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act.

topography: The features of the earth, including relief, vegetation, and waters.

topsoil: The uppermost layers of naturally occurring soils suitable for use as a plant growth medium.

total dissolved solids (TDS): Total amount of dissolved material, organic or inorganic, contained in a sample of water.

transpiration: The process by which water vapor escapes from a living plant and enters the atmosphere.

tuff: A rock formed by compacted volcanic fragments, generally smaller than 4 mm in diameter.

turbidity: A measurement of the total suspended solids.

two-track: A road that has not been constructed or maintained but that has been created by repeated use.

unconformity: A break in the stratigraphic sequence.

underground source of drinking water: An aquifer that supplies any public water system or contains a sufficient quantity of groundwater to supply a public water system or currently supplies drinking water for human consumption.

understory: A layer of vegetation underlying a layer of taller vegetation, such as brush and grass under trees.

undulate: To move or cause to move with a wavelike motion.

ustic: Soils that are moist for more than half a year but have a distinct dry season.

vegetation type: A plant community with visually distinguishable characteristics, named for the apparent dominant species.

viewshed: The areas seen from any given point.

visibility: Refers to the visual quality of the view or scene in daylight, with respect to color, rendition, and contrast definition. The ability to perceive form, color, and texture.

visual resource: The composite of basic terrain, geologic features, water features, vegetation patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for viewers.

Visual Resource Management (VRM): A system of visual management used by the BLM. The program has a dual purpose—to manage the quality of the visual environment, and to reduce the visual impact of development activities while maintaining effectiveness in all BLM resource programs. VRM also identifies scenic areas that warrant protection through special management attention. The system uses four classes for categorizing visual resources.

Class I—Natural ecological changes and limited management activity are allowed. Any contrasts created within the characteristic landscape must not attract attention. This classification is applied to wilderness areas, wild and scenic rivers, and other similar situations.

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Class II—Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen but must not attract attention.

Class III—Contrasts to the basic elements caused by a management activity are evident but should remain subordinate to the existing landscape.

Class IV—Any contrast may attract attention and be a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color, and texture of the characteristic landscape.

water bar: A ridge made across an incline to divert water to one side.

water quality: Refers to a set of chemical, physical, or biological characteristics that describe the condition of a river, stream, or lake. The quality of water determines what beneficial uses it can support. Different conditions or levels of water quality are required to support different beneficial uses.

water recharge: The natural process whereby surface water enters a groundwater aquifer.

watershed: The total land area that drains to a given watercourse or body of water.

Waters of the U.S.: A jurisdictional term from Section 404 of the Clean Water Act referring to water bodies such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds with defined bed and bank, the use, degradation, or destruction of which could affect interstate or foreign commerce.

well or wellbore: The hole drilled from the surface to the gas-bearing formation, several of which may be developed from a single well pad.

well pad: Relatively flat work area (surface location) that is used for drilling a well or wells and producing from the well once it is completed.

wetlands: A term that varies in meaning depending on the methodology used to determine wetland characteristics. Typically wetlands must have plants associated with anaerobic soil conditions (no oxygen and saturated with water), evidence of modeling (metal deposits) or other hydric soil indicators, and the hydrology to allow for the location to be fully saturated at or near the soil surface for at least two weeks in a typical year. Wetlands can include standing water at or near the surface (typically not more than 6 feet deep) or saturated banks along flowing water such as riparian areas. (See also wetlands/riparian.)

wetlands/riparian: Areas exhibiting vegetation or physical characteristics that reflect the influence of surface or subsurface water. These areas include lands adjacent to, or contiguous with, perennially and intermittently flowing rivers, streams, springs and seeps; meadows; playas; and the shores of lakes and reservoirs with stable water levels, among others. Excluded are ephemeral streams or washes that lack typical riparian vegetation. These areas can typically be identified by the plant communities that are present. (See also definitions for wetlands and riparian communities.)

wind rose: Any one of a class of diagrams designed to illustrate the distribution of wind direction experienced at a given location over a given period of time. Wind roses may also give information concerning distribution of wind speed, stability, or other meteorological parameters.

winter range: The place where migratory (and sometimes non-migratory) animals congregate during the winter season.

workover: Well maintenance activities that require onsite mobilization of a drill rig to repair the well bore equipment (casing, tubing, rods, or pumps) or the wellhead. In some cases, a workover may involve development activities to improve production from the target formation.

Wyoming Ambient Air Quality Standards (WAAQS): The allowable concentrations of air pollutants in the air specified by the State of Wyoming. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the

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public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare from any unknown or expected adverse effects of air pollutants).

zone: The area between two depths in a well containing reservoir or other characteristics.